DOCUMENT RESUME

ED 150 182 TM 006 908

AUTHOR	Peng, Samuel S.
TITLE	Some Trends in the Entry to Higher Education: A Comparison between NLS and Project TALENT.
PUB DATE	Sep 76
NOTE	19p.; Paper presented at the Annual Meeting of the American Psychological Association (84th, Washington, D.C., September 3-7, 1976)
EDRS PRICE	MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS	Academic Ability; *College Admission; Colleges; Compensatory Education Programs; Disadvantaged Youth; Educational Trends; *Enrollment Trends; Equal Education; *High School Graduates; Junior Colleges; *Longitudinal Studies; *National Surveys; Post Secondary Education; Racial Differences; Sex Differences; Social Differences; Socioeconomic Influences; Universities
IDENTIFIERS	*National Longitudinal Study High School Class 1972; *Project Talent

ABSTRACT

Using data from the Project Talent study of the high school class of 1961 and the National Longitudinal Study of the high school class of 1972 (NLS), current patterns of enrollment in post secondary education were compared with patterns of ten years ago. Differences in college entry rates were examined among groups defined by sex, ability, ethnic and socioeconomic background. Increases or decreases in the differences were also noted. The results indicated that the rate of entry into four-year institutions has declined, but the rate of entry into two-year colleges has increased; and while the combined overall college-going rate has increased for women, there appeared to be no substantial changes for men. It was also revealed that sex and socioeconomic status (SES) differences in college entry have been reduced and that racial differences could be explained largely on the basis of differences in academic ability and SES among the racial groups. Within this context, some progress in achieving equality of educational opportunity seems to have been made. However, there has been a large decline in college entry among highly able students, particularly for men. Brief descriptions of Project Talent and the NLS are appended. (Author/MV)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED150182

SCOPE OF INTEREST NOTICE
The ERIC Facility has assigned this document for processing to: TM HE
In our judgement, this document is also of interest to the clearinghouses noted to the right. Indexing should reflect their special points of view.

Some Trends in the Entry to Higher Education: A Comparison between NLS and Project TALENT

Samuel S. Peng
Research Triangle Institute

September 1976

Paper presented at the Annual Meeting of the American Psychological Association in Washington, D. C., 1976

TM006 908

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Research Triangle Institute
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

Abstract

Information was drawn from Project TALENT and NLS to answer the following questions: Have the overall college entry rates increased or decreased to any significant extent over the past decade? Have the differences in college entry rates among groups defined by sex, ability, ethnicity, and socioeconomic background (SES) decreased? Results indicated that the rate of entry into four-year institutions has declined, but the rate of entry into two-year colleges has increased; the combined overall college-going rate has increased for women, but there appeared to be no substantial changes for men. Results also revealed that sex and SES differences in college entry have been reduced and that racial differences can be explained largely on the basis of differences in academic ability and SES among the racial groups. Within this context, some progress in achieving equality of educational opportunity seems to have been made. However, a large decline in college entry among highly able men may indicate that some ground may have been lost on the post-Sputnik goal of educating the most able people.

Some Trends in the Entry to Higher Education: A Comparison Between NLS and Project TALENT[1/]

In this nation, as in many other free nations, education has played a significant role in determining a person's future career development and life satisfaction; and for many socioeconomically disadvantaged and minority children, education has been a vehicle for upward mobility. However, many children who want a postsecondary education may find this opportunity unavailable for such reasons as the lack of financial support and being associated with certain biosocial groups. To reduce such inequities of educational opportunity, several federal programs (e.g., the Basic Educational Opportunity Grant Program and College Work-Study Program) have been established to aid needy students. Federal compensatory programs (e.g., Upward Bound and Talent Search) and new efforts by individual colleges were also developed to encourage and support minority group participation in postsecondary education. These programs, as well as such social and economic factors as the war in Vietnam, the women's liberation movement, and a tight labor market for college graduates in the past decade, may have had a substantial impact on patterns of postsecondary educational enrollment. It thus seems appropriate at this time to ask questions about current enrollment patterns of high school graduates in postsecondary education, as compared to those existing prior to these potentially powerful intervening forces.

The primary purpose of this paper is, therefore, to compare current patterns of participation in postsecondary education with patterns about ten years ago. In particular, the following questions are addressed:

(1) What are the overall rates of college entry? Are they different from those about ten years ago?

(2) Are there any differences in the college entry rates among groups defined by sex, ability, ethnicity, and socioeconomic background? Have the differences increased or decreased?

Method

To answer these questions, relevant information was drawn from two comparable data sets: Project TALENT (see Flanagan & Cooley, 1966) and the National Longitudinal Study of the High School Class of 1972 (NLS). They are briefly described in Appendices A and B, respectively. Both studies involved stratified national probability samples, and the estimates were properly weighted to reflect the national parameters. Because of the large national probability sample involved in the studies, the standard errors for estimated values were generally very small.

Several classes (i.e., grade levels) were included in Project TALENT. The one that was drawn for this study is the Class of 1961. The information in this report was adapted from the final report of one-year follow-up studies (Flanagan & Cooley, 1966). The NLS data were from the first follow-up survey, and were analyzed in a format that is compatible with that of the Project TALENT report in order to make comparisons. The analysis technique was basically multiple cross-classification, and the marginal estimates for one variable were balanced by other classification variables (i.e., averages across other classification variables). In many cases, the analyses remained descriptive because the subgroup sizes of Project TALENT were not available in this study.

It should be noted that the ability[2/] and socioeconomic status (SES)[3/] measures used in the studies were not exactly the same. However, both were composite scores derived from several components, most of which were in common for both studies. For example, SES in both studies included parents' education level, family income, father's occupation, and household items. Ability measures were highly reliable and valid (see Flanagan & Cooley, 1966; Hilton et al., 1973). It should also be noted that the analyses in this study are interested only in the relative position of an individual in the population; thus the assumption of approximately normal distribution of SES and ability for both time points was used. The changes in absolute measures of SES or ability in the population were not considered.

Results

The overall rates of enrollment in postsecondary education immediately after high school graduation decreased from about 59 to 54 percent (see Table 1). A further examination revealed that the decrease of enrollment rates existed at four-year institutions and vocational-technical schools. The enrollment rates in two-year institutions (i.e., junior or community colleges), on the contrary, increased from about 8 percent to 14 percent. When the entries to the two-year and four-year institutions were combined, proportionally more women were in colleges now than ten years ago, while no changes in the proportion of entries appeared for men. As shown in later sections, this trend still existed within categories of SES and ability.

Insert Table 1 about here

Table 1 also shows that for both Project TALENT and NLS there were sex differences in the entry to colleges: men had higher percentages in four-year and two-year college enrollment than women, whereas women had a higher enrollment rate in vocational-technical programs than men. While the magnitude of differences in two-year and vocational-technical entries remained the same (1 and 3 percent, respectively), the sex differences favoring men in the four-year college attendance rates decreased from about 8 percent to 2 percent. The reduction of total sex differences in the entry to post-high-school education was primarily due to a greater decrease in the four-year college attendance rate among men than women (approximately 7 percent for men, as compared to 1 percent for women).

Tables 2 and 3 present college attendance rates further cross-classified by ability and SES, the two variables which are the major known influences determining individual differences in postsecondary educational attainment (e.g., Norris & Katz, 1970; Sewell, 1971; Astin, 1971). The three-way classifications allow further investigation of the relationship of sex, ability, and SES with college attendance.

Insert Table 2 and 3 about here

From Table 2, it can be seen that the decrease in four-year college entry rates was greater for higher ability groups than lower ability ones; and this held for both men and women. For men, the decrease rate for high ability group was about 16 percent as compared to about 5 percent for the low ability group after SES was balanced. For women, the decrease rates were 9 percent and 0 percent, respectively, for high and low ability group (see the Total column of Table 2). The decline appeared to be linearly related to ability level; the higher the ability level, the greater the decline in college entries.

Unlike the four-year college entries, the entries to the two-year college increased, particularly among students of middle and high ability (see Table 3). When SES was balanced, there was a 10 percent increase among highly able men and a 12 percent increase among highly able women. The increase also appeared to be linearly related to ability level.

When the entries to the four-year and two-year institutions were combined, there was a 6 percent decrease among men of high ability; this decrease was greater than that of low-ability group members. There was a 3 percent increase among women of high ability in entries to colleges; this increase was slightly smaller than that of women of low ability.

Socioeconomic background used to be a favorite explanation of individual differences in college entry. Previous studies have found that high SES students were more likely than low SES students to enter colleges, even after ability was controlled (e.g., College Entrance Examination Board, 1974). This finding is still supported by the NLS data; there was a significant difference in college entry rate between high and low SES groups. The differences, however, seem less now than about ten years ago. The differences in four-year college attendance rates between the first and fourth SES quartiles was reduced from 30 percent to 20 percent for men, and from 31 percent to 22 percent for women, after ability was controlled. The differences were attributable to a greater decrease in college-going rates among high SES members than among low SES members (see Table 2). Socioeconomic differences in the two-year college entries also existed; however, the pattern was different from that of ten years ago. While Project TALENT showed that the higher SES group had a higher two-year college entry rate than the lower

SES group (i.e., linear relationship), the NLS showed that the middle two SES groups had higher rates than the other two SES groups (i.e., curvilinear relationship).

Racial background has been another favorite explanation for individual differences in college entry. Although race differences in college entries were not reported in the Project TALENT report, many previous studies indicated that whites were more likely than non-whites to attend a four-year college even when either SES or ability was considered (e.g., Clift, 1969; Berls, 1971; Stent, et al., 1974; Flax, 1971). This was not supported by the NLS data. When SES or ability was considered, initial ethnic differences completely disappeared; whites did not necessarily have a higher four-year college attendance rate than non-whites. As shown in Table 4, controlling for ability, blacks had the highest percentages of four-year college entry, and Hispanics were more likely than others to attend a two-year college. The average four-year college-going rates across four ability levels were 47, 29, and 29 percent for blacks, whites, and Hispancis, respectively. The tow-year college-going rates were 9, 15, and 26 percent, respectively, for blacks, whites, and Hispancis. A similar pattern existed when SES was considered.

Insert Table 4 about here

Discussion

In summary, the cross-study comparison revealed that, although the attendance rate in the four-year college has declined, the attendance rate in the two-year college has increased. When the four-year and the two-year institutions were combined, the recent college-going rate for women was greater than that ten years ago, while no substantial change appeared for men. The study also revealed that sex differences and SES differences in college entry have been reduced. In addition, racial differences in college attendance can be explained largely on the basis of differences in academic ability and SES among the racial groups.

The decline in the four-year college entry rates and increase in the two-year college entry rates may reflect the recent expansion of the junior or community colleges; many more young people are now choosing the two-year college as an alternative for a four-year college education than they were ten years ago. The increase in the entry to two-year colleges was particularly evident among groups of middle SES and middle or high ability. Many of those students may eventually enter four-year institutions (see Knoell & Medsker, 1965).

The increase in women's participation in higher education may indicate that more women now than ten years ago are career-oriented and thus desire higher education. Together with the findings of smaller SES and racial differences, the data seemed to indicate that some progress has been made in achieving equal opportunity for SES and sex groups in higher education.

The present finding of racial differences in college entries is quite different from previous findings. For example, the American Council on Education (1970) found that low-achieving whites were nearly three times as likely to be enrolled in universities as were lowest achieving blacks, and that male blacks at the top ability level were nearly three times as likely to attend a two-year college as male whites at the same ability level. This was not supported by NLS data. Reasons for this difference are unknown. One could speculate that the recent compensatory programs and college efforts in recruiting minority students have been successful.

The results of racial differences in college entries also supports the fact that college attendance rates for Hispanics are progressing (College Entrance Examination Board, 1972). Within each ability level, Hispanics had about the same attendance rate at four-year colleges as did whites. In addition, they were more likely to attend two-year colleges than were whites, bringing their overall attendance rate up to a point between blacks and whites.

The finding that a greater proportion of highly able men did not enter college is noteworthy. In terms of the optimal use of the nation's talent, one would expect a majority of the top quarter in ability to attend a four-year college. However, we find that only about 54 percent of the highly able young men did so in 1972. This is a great decline from the 70 percent

reported by Project TALENT on the 1961 data. Even when the two-year college-going rate was included, there was still a 6 percent decline. This may cast some light on the general decline of SAT and ACT scores; a greater number of highly able students do not take the tests, and thus the national average is getting lower. The decline of college entry of highly able students may also indicate that we have lost some ground on the post-Sputnik goal of educating the most able people. We probably should direct some research efforts to the explanation of this phenomenon. We should ask: Are we achieving equality at the expense of not educating the most able people? What eventually happens to those talented people who do not go to college? Is their talent lost to society, or do they find other ways to put it to use?

References

American Council on Education. National norms of entering college freshman. Fall, 1970.

Astin, A. W. Predicting academic performance in college. New York: The Science, 1968, Free Press, 1971.

Berls, R. Blacks and higher education. An unpublished paper. Washington, D. C.: U. S. Office of Education, 1971.

Clift, V. A. Higher education of minority groups in the United States. The Journal of Negro Education, 1969, 40, 292.

College Entrance Examination Board. Access to college for Mexican Americans in the Southwest. New York: College Entrance Examination Board, 1972.

College Entrance Examination Board. Equality of educational opportunity: Effects of poverty and minority status. New York: College Entrance Examination Board, 1974.

Flanagan, J. C., & Cooley, W. W. Project Talent One-Year Follow-Up Studies. (Final report to the U. S. Office of Education, Cooperative Research Project No. 2333.) Pittsburgh: School of Education, University of Pittsburgh, 1966.

Fleischmann, M. (Chairman). The Fleischman report on the quality, cost, and financing of elementary and secondary education in New York State, Volume 1. New York: Viking Press, 1973.

Flax, M. J. Blacks and whites. Washington, D. C.: The Urban Institute, 1971.

Hilton, T. L., et al. The base-year survey of the National Longitudinal Study of the high school class of 1972 (Final report to the National Center for Educational Statistics). Educational Testing Service, 1973.

Knoell, D. M., & Medsker, L. L. From junior to senior college: A national study of the transfer student. Washington, D. C.: ACE, 1965.

Norris, L., & Katz, M. R. The measurement of academic interests. Part II. College Entrance Examination Board Research and Development Reports, RDR-70-71, No. 5. Princeton, N. J.: Educational Testing Service, 1970, pp. 16-17.

Sewell, W. H. Inequality of opportunity for higher education. American Sociological Review, 1971, 36(5), pp. 795-796.

Stent, M. D., Brown, F., Hansen, R., & Ward, E. J. Minority enrollment and representation in institutions of higher education. The Ford Foundation, 1974.

Table 1

PERCENTAGES OF STUDENTS WHO ENTERED INSTITUTIONS
OF POSTSECONDARY EDUCATION IMMEDIATELY AFTER HIGH SCHOOL GRADUATION

	Project TALENT (Class of 1961)			NLS (Class of 1972)		
	Total	Men	Women	Total	Men	Women
Study	58.9	62.4	55.5**	53.8	54.3	53.4
Four-Year College	33.1	37.3	29.0**	29.0	30.1	27.8**
Two-Year College	7.6	8.2	7.1**	14.4	15.1	13.7*
Other (Voc-Tech)	18.2	16.9	19.4**	10.4	9.1	11.8**
Non-Study	41.1	37.6	44.5**	46.2	45.7	46.6
Sample Size (N)	46,118	21,669	24,449	22,342	11,073	11,269

* Men differed from women students at the .05 significance level.

** Men differed from women students at the .01 significance level.

Table 2

PROPORTION OF STUDENTS IN THE CLASS OF 1972 ENTERING FOUR-YEAR COLLEGES AND THE DIFFERENCES IN ENTRY RATES FROM THE CLASS OF 1961: BY SEX, ABILITY AND SOCIOECONOMIC STATUS[1/]

Sex	Ability Quartile	SOCIOECONOMIC QUARTILE (SES)				Total[2/]
		Low 1	2	3	High 4	
Men[3/]		.20 (-.03)	.23 (-.10)	.29 (-.11)	.41 (-.12)	.29 (-.09)
	1 Low	.07 (-.01)	.06 (-.06)	.09 (-.04)	.14 (-.12)	.09 (-.05)
	2	.13 (.00)	.14 (-.01)	.15 (-.14)	.25 (-.11)	.17 (-.07)
	3	.22 (-.03)	.26 (-.08)	.34 (-.11)	.52 (-.13)	.34 (-.09)
	4 High	.38 (-.10)	.46 (-.24)	.58 (-.15)	.74 (-.13)	.54 (-.16)
Women[3/]		.20 (.03)	.21 (-.07)	.27 (-.05)	.44 (-.04)	.28 (-.03)
	1 Low	.07 (.00)	.04 (-.03)	.10 (.05)	.18 (-.02)	.10 (.00)
	2	.11 (.03)	.12 (-.03)	.15 (-.05)	.31 (-.02)	.17 (-.02)
	3	.18 (.00)	.27 (.04)	.29 (-.07)	.50 (-.05)	.31 (-.02)
	4 High	.44 (+.10)	.41 (-.26)	.53 (-.14)	.76 (-.06)	.54 (-.09)

NOTE: 1. Figures in parentheses indicate changes from the Project TALENT Data of the Class of 1961

2. The figures are balanced by SES (i.e., averages across SES quartiles)

3. The figures are balanced by ability levels.

Table 3

PROPORTION OF STUDENTS IN THE CLASS OF 1972 ENTERING TWO-YEAR COLLEGES AND THE DIFFERENCES IN ENTRY RATES FROM THE CLASS OF 1961: BY SEX, ABILITY AND SOCIOECONOMIC STATUS[1/]

Sex	Ability Quartile	SOCIOECONOMIC QUARTILE				Total[2/]
		Low 1	2	3	High 4	
Men[3/]		.12 (.05)	.18 (.11)	.19 (.11)	.15 (.04)	.16 (.08)
	1 Low	.09 (.05)	.10 (.05)	.11 (.03)	.16 (.04)	.12 (.04)
	2	.09 (.03)	.17 (.10)	.20 (.11)	.16 (.00)	.16 (.06)
	3	.14 (.08)	.21 (.10)	.23 (.13)	.17 (.06)	.19 (.09)
	4 High	.15 (.02)	.24 (.17)	.23 (.15)	.11 (.06)	.18 (.10)
Women[3/]		.13 (.07)	.17 (.10)	.17 (.11)	.14 (.02)	.15 (.08)
	1 Low	.07 (.06)	.09 (.03)	.11 (.07)	.20 (.03)	.12 (.05)
	2	.11 (.06)	.13 (.09)	.14 (.08)	.13 (.03)	.13 (.07)
	3	.10 (.02)	.19 (.10)	.21 (.13)	.15 (-.02)	.16 (.06)
	4 High	.22 (.14)	.25 (.17)	.22 (.14)	.09 (.04)	.20 (.12)

NOTE: 1. Figures in parentheses indicate changes from the Project TALENT Data of the Class of 1961.

2. The figures are balanced by SES (i.e., averages across SES quartiles).

3. The figures are balanced by ability levels.

Table 4

PERCENTAGE OF HIGH SCHOOL GRADUATES IN EACH POSTSECONDARY EDUCATIONAL ACTIVITY BY RACE AND ABILITY (NLS-1972)

Race	Ability Quartile	Study			Non-Study	Sample Size
		4-Year College	2-Year College	Other		
Black						
	1st (Low)	15.5	10.0	14.0	60.5	1167
	2nd	42.2	11.3	9.1	37.4	367
	3rd	54.7	10.5	5.1	29.6	145
	4th (High)	73.8	4.6	8.0	13.7	50
White						
	1st (Low)	6.4	10.7	11.8	72.1	2180
	2nd	15.0	17.4	11.8	55.8	2863
	3rd	33.7	18.9	10.2	37.2	3050
	4th (High)	61.3	13.2	5.8	19.7	3193
Hispanic						
	1st (Low)	9.6	19.4	11.3	59.7	371
	2nd	20.2	30.2	6.8	42.7	152
	3rd	33.8	26.4	5.9	33.9	72
	4th (High)	52.1	26.3	0.0	21.6	19

Appendix A

Project TALENT

Project TALENT was conceived and organized in the late fifties, and was primarily concerned with various aspects of career development of American youth--the nature of their employment and job satisfaction, the nature and extent of their post-high-school education, and then long-range career plans. In 1960 a probability sample of approximately 5 percent of the high schools in this country was drawn. The 400,000 students in grades 9 through 12 attending those randomly selected schools were administered two days of educational-psychological tests and inventories. Those instruments were specially constructed for this project. Included were measures of specialized aptitudes and general ability, interests and temperament, and almost 400 items on student activities, home background, and plans for the future.

The follow-up studies of the original sample were undertaken when each grade was one year out of high school. The follow-up included three or four waves of a mailed questionnaire. Following the mailed survey, a sample of the nonrespondents was drawn (usually 5 percent) and sought out through field surveys. This sample of nonrespondents made it possible to estimate the characteristics of the nonrespondent population and combine them with those of the repondents. For the class of 1961, which was drawn for this report, 21,669 men and 24,449 women participated in the first year follow-up.

Appendix B

The NLS Data Base

The National Longitudinal Study of the High School Class of 1972 (NLS) is a long-term educational research program sponsored by the National Center for Education Statistics. This program has been designed to discover what happens to young people after they leave high school, as measured by their subsequent educational and vocational activities, plans, aspirations, and attitudes, and to relate this information to their prior educational experiences, and their personal and socioeconomic characteristics. The ultimate purpose of NLS is to gain a better understanding of the development of students as they pass through the American educational system, and the complexity of factors associated with individual educational and career outcomes.

After extensive planning, which included the design and field test of survey instrumentation and procedures, the full-scale survey was initiated in the spring of 1972. A national probability sample of 19,144 seniors from 1,070 public, private, and church-affiliated high schools participated in the base-year survey. In the base-year survey, each student was asked to complete a Student Questionnaire containing 104 questions and to take a 69-minute test battery.

The first follow-up survey began in October 1973 and ended in April 1974. Added to the base-year sample were 4,450 seniors from the class of 1972 in about 250 additional schools which had been unable to participate earlier, bringing the total first follow-up sample to over 23,000 potential respondents. There were 21,350 sample members who completed the First Follow-Up Questionnaire, 69 percent by mail and 31 percent by personal interview. Unfortunately, the additional 4,450 seniors plus 2,089 base-year sample members did not have ability test scores, and they were consequently excluded from analyses requiring these scores.

In the first follow-up survey, participants were asked to indicate their educational status in October 1972 and in October 1973. These status variables, together with the participants' aptitude test scores, socio-economic background, sex, and ethnicity, were the primary analysis variables in this study.

It should be noted that the present sample is representative of the high school class of 1972. Students who dropped out of school before twelfth grade were not included in the sample, and hence, inferences are restricted to 1972 high school seniors. Previous studies have shown that minority members are more likely than majority students to drop out of school before the twelfth grade (e.g., Clift. 1969; Fl[illegible]schmann, 1973).

Footnotes

1/ The ability measure used in the NLS was a composite score of four tests: Vocabulary, Reading, Letter Groups, and Mathematics. A factor analysis revealed a general academic ability factor that was represented by an equally weighted linear composite of these four standardized tests. The composite score was classified into quartiles on the basis of the weighted frequency distribution of the composite score.

The ability measure used in the Project TALENT was a composite score of the following nine tests: Math Information, Vocabulary Scale I & II, English Total, Reading Comprehension, Creativity, Abstract Reasoning, Math I (Arithmetic Reasoning), Math II (Introductory High School Math), and Math I & II.

2/ SES used in the NLS was based upon a composite of father's education, mother's education, parental income, father's occupation, and household items index. Factor analysis revealed a common factor with approximately equal loadings for each of the five components. Missing components were imputed as the mean of the subpopulation of which the respondent was a member, defined according to cross-classifications of race, high school program, and aptitude. The available standardized components, both imputed and nonimputed, were averaged to form an SES when at least two nonimputed components were available. The continuous SES score was then assigned to one of the quartiles on the basis of the weighted frequency distribution of the composite score.

SES used in the Project TALENT was based upon composite of value of home, family income, books in home, appliances, TV, radio, own room, father's occupation, father's education, and mother's education. It is a standard score (with a mean of 100 and a standard deviation of 10) based on the items the student answered from the nine possible ones.